

CLAIMS

1. System for multiple harnessing and complemented conversion of energy from sea waves, which includes a central floating body (1), means (23,47) for converting the movement of the system into pneumatic, electrical or hydraulic energy, provided or otherwise inside same, and means of transmission (26) of said energy to dry land or to a structure, **characterised** in that it includes a structure of vertical guides (12) along which said central floating body (1) moves, a submerged captive-air (5) tank (4) open at its lower base, held up by said floating body (1) and also movable along said structure of vertical guides (12), means (10, 11) for transmitting the movement of said floating body (1) to said submerged tank (4), with the body (1) and the tank (4) so arranged that the movement of the submerged tank (4) is contrary to that of the central floating body (1), the movement of the central floating body (1) and of the submerged tank (4) being transmitted via means (9,24,32,35,42,43,44,45) of transmission of the movement to said means of conversion (23, 47) of the movement into pneumatic, electrical or hydraulic energy.

2. System according to Claim 1, characterised in that it includes at least one peripheral floating body (28) having a density of 0.5 g/cc, attached to said structure (12) of vertical guides.

3. System according to Claim 1, characterised in that said central floating body includes a receptacle (30) with air (31) under pressure, at least one pneumatic actuator mounted inside said receptacle, with the upper chamber (48) of said actuator connected to the submerged tank (4) and the lower chamber (49), which is open at its base and exposed to the air (31) under pressure of said receptacle (30).

4. System according to Claim 3, characterised in that the at-least-one pneumatic actuator is a cylinder (40).

5. System according to Claim 1, characterised in that said movement transmission means include a rotation inverter (9, 42), a multiplier (43), a variable speed device (44) and a flywheel (24, 45).

6. System according to Claim 5, characterised in that said means of movement transmission further include a toothed rack (32) engaging at each of its sides two gearwheels (35).

7. System according to Claims 4 and 6, characterised in that the piston rod (50) of said at-least-one pneumatic cylinder (40) includes means for driving a moving platform (41) located on the upper receptacle (29) of the central floating body (1) and traversed by the toothed rack (32), with the gearwheels (35) mounted rotating on the platform (41).

8. System according to Claim 1, characterised in that the means for conversion of the movement into energy comprise at least one electrical generator (47), one

pneumatic pump (23) or one hydraulic pump.

9. System according to Claim 6, characterised in that it includes telescopic tubes (36) which house at least the means of transmission (10,11) of the movement of the floating body (1) to the submerged tank (4) and the toothed rack (32).

10. System according to Claim 1, characterised in that it includes a plurality of modules, each of which has a central floating body (1) and a submerged captive-air (5) tank (4), attached to the central floating body (1).

11. System according to Claim 1, characterised in that said central floating body (1) has a cavity containing captive air (7) inside it.

12. System according to Claim 1, characterised in that it includes a plurality of peripheral floating bodies (2a, 2b, 2c), attached to said central floating body (1) by means of tilting attachment structures (16).

13. System according to Claim 12, characterised in that said means of converting the movement into energy further include a plurality of pneumatic cylinders (17a, 17b, 17c, 21a, 21b) actuated by said tilting attachment structures (16).

14. System according to Claims 12 and 13, characterised in that said peripheral floating bodies (2a, 2b, 2c) each include two peripheral pneumatic cylinders (21a, 21b) which compress the air from one of the cylinders (17a, 17b, 17c) of the central floating body (1), the tilting structure (16) of each one of the central floating body (1) cylinders (17a, 17b, 17c) including a bar (19) articulated at one end onto the rod of said cylinder (17) and at the other end onto a lever (20) whose ends are in turn articulated onto the ends of the peripheral pneumatic cylinder (21a, 21b) rods, with the distance between the two points of articulation onto said bar (19) being substantially the same as the distance between the crest and the trough of a wave.

15. System according to Claim 14, characterised in that one of the two peripheral pneumatic cylinders (21a, 21b) compresses the air from the other peripheral pneumatic cylinder.

16. System according to Claim 15, characterised in that each one of the pneumatic cylinders (17a, 17b, 17c) of the central floating body (1) and the two corresponding peripheral pneumatic cylinders (21a, 21b) constitutes three-stage linear pneumatic pumps.

17. System according to Claims 15 and 8, characterised in that the compressed air produced by the system is stored in the chambers of each one of said peripheral floating bodies (2a, 2b, 2c).

18. System according to Claim 8, characterised in that the system further includes a number of reverse osmosis membranes for directly converting the hydraulic energy obtained into desalinated water.